



General

Guideline Title

Summary of evidence-based guideline update: prevention of stroke in nonvalvular atrial fibrillation. Report of the Guideline Development Subcommittee of the American Academy of Neurology.

Bibliographic Source(s)

Culebras A, Messing SR, Chaturvedi S, Kase CS, Gronseth G. Summary of evidence-based guideline update: Prevention of stroke in nonvalvular atrial fibrillation: Report of the Guideline Development Subcommittee of the American Academy of Neurology. *Neurology*. 2014 Feb 25;82(8):716-24. [40 references] [PubMed](#)

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: American Academy of Neurology. Practice parameter: stroke prevention in patients with nonvalvular atrial fibrillation: report of the Quality Standards Subcommittee of the American Academy of Neurology. *Neurology* 1998 Sep;51(3):671-3.

This guideline meets NGC's 2013 (revised) inclusion criteria.

Recommendations

Major Recommendations

Definitions of the levels of the recommendations (A, B, C) and classification of the evidence (Class I-IV) are provided at the end of the "Major Recommendations" field.

Identification of Patients with Occult Nonvalvular Atrial Fibrillation (NVAf)

Clinical Context

In patients with recent cryptogenic stroke, outpatient cardiac rhythm monitoring performed with nonimplanted devices probably detects unsuspected NVAf at a rate that ranges from 0% to 23% (weighted average 10.7% [95% confidence interval (CI) 7.9% to 14.3%]), with longer monitoring periods probably associated with a greater yield. Many of the NVAf episodes that are detected are clinically asymptomatic, and thus monitoring devices with continuous recording or automatic detection algorithms, rather than patient-triggered recording, are preferred. The risk of recurrent stroke is uncertain in patients with very brief (e.g., <30 seconds) or very infrequent episodes of NVAf; however, previous studies have demonstrated that NVAf tends to occur for progressively longer periods, and the stroke risk in patients with paroxysmal NVAf is similar to that in patients with persistent NVAf.

Practice Recommendations

1. Clinicians might obtain outpatient cardiac rhythm studies in patients with cryptogenic stroke without known NVAf, to identify patients with occult NVAf (Level C).
2. Clinicians might obtain cardiac rhythm studies for prolonged periods (e.g., for 1 or more weeks) instead of shorter periods (e.g., 24 hours) in patients with cryptogenic stroke without known NVAf, to increase the yield of identification of patients with occult NVAf (Level C).

Selection of Patients for Antithrombotic Therapy

Clinical Context

Within the NVAf population, the absolute risk of ischemic stroke varies widely on the basis of the presence of other stroke risk factors. The absolute stroke risk is highest among patients with NVAf and a history of stroke and transient ischemic attack (TIA) (aggregated absolute risk about 10%/y). Although multiple risk stratification tools are available for estimating the absolute stroke risk of patients with NVAf, the absolute stroke risks estimated by these tools vary widely.

Because it is difficult to determine with precision the absolute stroke risk in patients with NVAf, determining when the benefit from reduced stroke risk outweighs the harm of increased bleeding is likewise difficult. In these circumstances, patient preferences and physician judgment become especially important.

Practice Recommendations

1. Clinicians should inform patients with NVAf that these patients have an increased stroke risk and that this risk can potentially be reduced by antithrombotic use. Patients should also be informed that antithrombotic use increases their risk of major bleeding (Level B).
2. Clinicians should counsel all patients with NVAf that the decision to use antithrombotics must be made only after the potential benefit from the stroke risk reduction has been weighed against the potential harm from the increased risk of major bleeding. Clinicians should also emphasize the important role of judgment and preferences in this decision (Level B).
3. Clinicians should routinely offer anticoagulation to patients with NVAf and a history of TIA or stroke, to reduce these patients' subsequent risk of ischemic stroke (Level B).
4. Clinicians might not offer anticoagulation to patients with NVAf who lack additional risk factors ("lone" NVAf patients). Clinicians might reasonably offer antithrombotic therapy with aspirin to such patients or might not offer antithrombotic therapy at all (Level C).
5. To inform their judgments as to which patients with NVAf might benefit more from anticoagulation, clinicians should use a risk stratification scheme to help identify patients with NVAf who are at higher risk for stroke or at no clinically significant risk. However, clinicians should not rigidly interpret anticoagulation thresholds suggested by these tools as being definitive indicators of which patients require anticoagulation (Level B).

Selection of a Specific Oral Anticoagulant

Clinical Context

The guideline panel's review indicates that several anticoagulant medications decrease the risk of ischemic stroke in patients with NVAf. In clinical trials, the new oral anticoagulants are noninferior or superior to warfarin for reducing stroke, and in most patients the reduction in ischemic stroke risk outweighs the risk of bleeding complications.

Practice Recommendations

1. To reduce the risk of stroke or subsequent stroke in patients with NVAf judged to require oral anticoagulants, clinicians should choose one of the following options (Level B):
 - Warfarin, target international normalized ratio (INR) 2.0 to 3.0
 - Dabigatran 150 mg twice daily (if creatinine clearance [CrCl] >30 mL/min)
 - Rivaroxaban 15 mg/d (if CrCl 30 to 49 mL/min) or 20 mg/d
 - Apixaban 5 mg twice daily (if serum creatinine <1.5 mg/dL) or 2.5 mg twice daily if *any* 2 of the following criteria are present: serum creatinine >1.5 mg/dL and <2.5 mg/dL; body weight ≤60 kg; age ≥80 years.)
 - Triflusal 600 mg plus acenocoumarol, target INR 1.25 to 2.0 (patients at moderate stroke risk, mostly in developing countries)

Patients Already Taking Warfarin

2. Clinicians might recommend that patients taking warfarin whose condition is well-controlled continue warfarin treatment rather than switch to treatment with a new oral anticoagulant (Level C).

Intracranial Bleeding Risk

3. Clinicians should administer dabigatran, rivaroxaban, or apixaban to patients who have NVAf requiring anticoagulant medication and are at higher risk of intracranial bleeding (Level B).

Gastrointestinal (GI) Bleeding Risk

4. Clinicians might offer apixaban to patients with NVAf and GI bleeding risk who require anticoagulant medication (Level C).

Other Factors Affecting Administration of New Oral Anticoagulants

5. Clinicians should offer dabigatran, rivaroxaban, or apixaban to patients unwilling or unable to submit to frequent periodic testing of INR levels (Level B).
6. Clinicians should offer apixaban to patients unsuitable for being treated, or unwilling to be treated, with warfarin (Level B).
7. Where apixaban is unavailable, clinicians might offer dabigatran or rivaroxaban (Level C).
8. Where oral anticoagulants are unavailable, clinicians might offer a combination of aspirin and clopidogrel (Level C).
9. Where triflusal is available and patients are unable or unwilling to take new oral anticoagulants (mostly in developing countries), clinicians should offer acenocoumarol (target INR 1.25 to 2.0) and triflusal to patients with NVAf who are at moderate stroke risk and higher bleeding risk (Level B).

Special Populations

Clinical Context

Some clinicians are reluctant to use anticoagulants to treat elderly patients with NVAf because of perceived high risk of bleeding. However, anticoagulation with warfarin is superior to that with aspirin for reducing the risk of ischemic stroke in patients ≥ 75 years with NVAf, whereas rates of major bleeding are comparable. In one important subgroup, elderly patients who have frequent falls or advanced dementia, data are insufficient to determine whether anticoagulants are safe or effective. One study that used a decision analysis model estimated that an elderly patient would need to fall 295 times in 1 year to offset the stroke reduction benefits with warfarin.

Another important subgroup is patients with renal failure. For dabigatran, one of the newer anticoagulants, a lower dose of 75 mg bid is recommended by the U.S. Food and Drug Administration when the CrCl reaches 15 to 30 mL/min. Apixaban is recommended at 5 mg twice daily, if serum creatinine is <1.5 mg/dL, or at 2.5 mg twice daily, if serum creatinine is >1.5 and <2.5 mg/dL. Rivaroxaban was tested in patients at 15 mg daily, if CrCl is 30 to 49 mL/min, or at 20 mg daily, if CrCl is >50 mL/min, and recommendations are limited to these patient groups. With regard to warfarin, data have shown that warfarin treatment is associated with a decreased risk of stroke or systemic thromboembolism among patients with non-end-stage chronic kidney disease (CKD) but that warfarin treatment may be associated with an increased bleeding risk.

Practice Recommendations

1. Clinicians should routinely offer oral anticoagulants to elderly patients (aged >75 years) with NVAf if there is no history of recent unprovoked bleeding or intracranial hemorrhage (Level B).
2. Clinicians might offer oral anticoagulation to patients with NVAf who have dementia or occasional falls. However, clinicians should counsel patients or their families that the risk–benefit ratio of oral anticoagulants is uncertain in patients with NVAf who have moderate to severe dementia or very frequent falls (Level B).
3. Because the risk–benefit ratio of oral anticoagulants in patients with NVAf and end-stage renal disease is unknown, there is insufficient evidence for making practice recommendations (Level U).

Definitions:

American Academy of Neurology (AAN) Rules for Classification of Evidence for Risk of Bias

For Questions Related to Therapeutic Intervention

Class I

- The study is a randomized clinical trial.
- All relevant baseline characteristics are presented and substantially equivalent between treatment groups or there is appropriate statistical adjustment for differences.
- Outcome measurement is objective or determined without knowledge of treatment status.
- The following also are required:

- a. The primary outcome(s) is/are defined.
- b. The inclusion criteria are defined.
- c. There is accounting of dropouts and crossovers (with at least 80% of enrolled subjects completing the study).
- d. There is concealed allocation.
- e. For noninferiority or equivalence trials claiming to prove efficacy for one or both drugs, the following are also required*:
 1. The authors explicitly state the clinically meaningful difference to be excluded by defining the threshold for equivalence or noninferiority.
 2. The standard treatment used in the study is substantially similar to that used in previous studies establishing efficacy of the standard treatment (e.g., for a drug, the mode of administration, dose, and dosage adjustments are similar to those previously shown to be effective).
 3. The inclusion and exclusion criteria for patient selection and the outcomes of patients on the standard treatment are comparable with those of previous studies establishing efficacy of the standard treatment.
 4. The interpretation of the results of the study is based on a per-protocol analysis that takes into account dropouts or crossovers.

Class II

- The study is a cohort study meeting criteria a–c above or is a randomized, controlled trial that lacks one or two criteria a–d.
- All relevant baseline characteristics are presented and substantially equivalent among treatment groups or there is appropriate statistical adjustment for differences.
- There is masked or objective outcome assessment.

Class III

- The study is a controlled study (including well-defined natural history controls or patients serving as their own controls).
- The study includes a description of major confounding differences between treatment groups that could affect outcome.
- Outcome assessment is masked, objective, or performed by someone who is not a member of the treatment team.**

Class IV

- The study does not include patients with the disease.
- The study does not include patients receiving different interventions.
- The study uses undefined or unaccepted interventions or outcome measures.
- No measures of effectiveness or statistical precision are presented or calculable.

*Note that numbers 1-3 in Class Ie are required for Class II in equivalence trials. If any one of the three is missing, the class is automatically downgraded to Class III.

**Objective outcome measurement: an outcome measure that is unlikely to be affected by an observer's (patient, treating physician, investigator) expectation or bias (e.g., blood tests, administrative outcome data).

For Questions Related to Screening (Yield)

Class I

A statistical,^a population-based^b sample of patients studied at a uniform point in time (usually early) during the course of the condition. All patients undergo the intervention of interest. The outcome, if not objective,^c is determined in an evaluation that is masked to the patients' clinical presentations.

Class II

A statistical,^b non-referral-clinic-based^d sample of patients studied at a uniform point in time (usually early) during the course of the condition. Most (>80%) patients undergo the intervention of interest. The outcome, if not objective,^c is determined in an evaluation that is masked to the patients' clinical presentations.

Class III

A sample of patients studied during the course of the condition. Some patients undergo the intervention of interest. The outcome, if not objective,^c

is determined in an evaluation by someone other than the treating physician.

Class IV

The data are derived from expert opinion, case reports, or any study not meeting criteria for Class I to III.

Notes:

^aStatistical sample: The study uses a complete (consecutive), random, or systematic (e.g., every third patient) sample of the available population with the disease.

^bPopulation based: The available population for the study consists of all patients within a defined geographic region.

^cObjective: The objective consists of an outcome measure that is very unlikely to be affected by an observer's expectations (e.g., determination of death, the presence of a mass on head computed tomography, serum B12 assays).

^dNon-referral-clinic based: The available population for the study consists of all patients presenting to a primary care setting with the condition. For referral-clinic-based studies, the available population consists of all patients referred to a tertiary care or specialty setting. These patients may have been selected for more severe or unusual forms of the condition and thus may be less representative.

Classification of Recommendations

Level A = Established as effective, ineffective or harmful (or established as useful/predictive or not useful/predictive) for the given condition in the specified population. (Level A rating requires at least two consistent Class I studies. *)

Level B = Probably effective, ineffective or harmful (or probably useful/predictive or not useful/predictive) for the given condition in the specified population. (Level B rating requires at least one Class I study or two consistent Class II studies.)

Level C = Possibly effective, ineffective or harmful (or possibly useful/predictive or not useful/predictive) for the given condition in the specified population. (Level C rating requires at least one Class II study or two consistent Class III studies.)

Level U = Data inadequate or conflicting; given current knowledge, treatment (test, predictor) is unproven.

*In exceptional cases, one convincing Class I study may suffice for an "A" recommendation if 1) all criteria are met, 2) the magnitude of effect is large (relative rate improved outcome >5 and the lower limit of the confidence interval is >2).

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

- Nonvalvular atrial fibrillation (NVAf)
- Ischemic stroke

Guideline Category

Prevention

Risk Assessment

Screening

Treatment

Clinical Specialty

Cardiology

Internal Medicine

Neurology

Intended Users

Advanced Practice Nurses

Nurses

Physician Assistants

Physicians

Guideline Objective(s)

- To update the 1998 American Academy of Neurology (AAN) practice parameter on stroke prevention in nonvalvular atrial fibrillation (NVAf)
- To answer the following clinical questions:
 - How often do various technologies identify previously undetected NVAf?
 - Which therapies reduce ischemic stroke risk with the least risk of hemorrhage, including intracranial hemorrhage?

Target Population

- Patients with known nonvalvular atrial fibrillation (NVAf)
- Patients with cryptogenic stroke without known NVAf (i.e., patients with occult NVAf)

Interventions and Practices Considered

1. Cardiac rhythm studies to identify patients with occult nonvalvular atrial fibrillation (NVAf)
2. Selection of patients for antithrombotic therapy based on risk assessment
3. Counseling patients with NVAf about increased stroke risk and the use of antithrombotics
4. Oral anticoagulant therapy (with international normalized ratio [INR] monitoring)
 - Warfarin
 - Dabigatran
 - Rivaroxaban
 - Apixaban
 - Triflusal plus acenocoumarol
 - Clopidogrel plus aspirin
5. Considerations for special populations: the elderly, patients with dementia, patients with increased fall risk, and patients with renal failure

Major Outcomes Considered

- Yield of identification of patients with occult nonvalvular atrial fibrillation
- Incidence and severity of:
 - Stroke or systemic embolism
 - Ischemic stroke
 - Major bleeding
 - Intracranial bleeding

- Gastrointestinal bleeding

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

The panel engaged a medical librarian to search MEDLINE, EMBASE, Cochrane, and Web of Science for relevant articles published between 1998 and November 2012. The key text words and index words used in the search are "anticoagulation," "antithrombotics," "antiplatelets," "atrial fibrillation," "cardioembolic stroke," "cryptogenic stroke," and "paroxysmal atrial fibrillation." The guideline developers considered studies that addressed population screening and therapy, including special population groups such as elderly individuals, nursing home residents, people with end-stage renal disease, and people with dementia. Appendix e-3 of the data supplement (see the "Availability of Companion Documents" field) provides the complete search strategy. The search was restricted to peer-reviewed articles on human subjects written in English. A secondary search of references of selected articles was conducted up to March 2013 to identify any articles missed in the initial search.

The searches yielded 2,450 abstracts, each of which was reviewed for relevance by at least 2 panel members. Of those abstracts, 125 were deemed relevant, and the corresponding articles were obtained for full-text review by 2 panelists working independently.

Number of Source Documents

A final selection of 83 relevant articles was made for data extraction.

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Therapeutic

Class I

- Randomized, controlled clinical trial (RCT) in a representative population
- Masked or objective outcome assessment
- Relevant baseline characteristics are presented and substantially equivalent between treatment groups, or there is appropriate statistical adjustment for differences
- Also required:
 - a. Concealed allocation
 - b. No more than two primary outcomes specified
 - c. Exclusion/inclusion criteria clearly defined
 - d. Adequate accounting for dropouts (with at least 80 percent of enrolled subjects completing the study) and crossovers with numbers sufficiently low to have minimal potential for bias
 - e. For noninferiority or equivalence trials claiming to prove efficacy for one or both drugs, the following are also required*:
 1. The authors explicitly state the clinically meaningful difference to be excluded by defining the threshold for equivalence or noninferiority
 2. The standard treatment used in the study is substantially similar to that used in previous studies establishing efficacy of the standard treatment (e.g., for a drug, the mode of administration, dose, and dosage adjustments are similar to those previously shown to be effective)

3. The inclusion and exclusion criteria for patient selection and the outcomes of patients on the standard treatment are comparable to those of previous studies establishing efficacy of the standard treatment
4. The interpretation of the study results is based on a per-protocol analysis that accounts for dropouts or crossovers
- f. For crossover trials, both period and carryover effects examined and statistical adjustments performed, if appropriate

Class II

- An RCT that lacks one or two criteria a–e (see Class I) or a cohort study meeting criteria b–e (see Class I)
- Randomized, crossover trial missing one of the following two criteria:
 - a. Period and carryover effects described
 - b. Baseline characteristics of treatment order groups presented
- All relevant baseline characteristics are presented and substantially equivalent among treatment groups, or there is appropriate statistical adjustment for differences
- Masked or objective outcome assessment

Class III

- Controlled studies (including studies with external controls such as well-defined natural history controls)
- Crossover trial missing both of the following two criteria:
 - a. Period and carryover effects
 - b. Baseline characteristics presented
- A description of major confounding differences between treatment groups that could affect outcome**
- Outcome assessment masked, objective, or performed by someone who is not a member of the treatment team

Class IV

- Did not include patients with the disease
- Did not include patients receiving different interventions
- Undefined or unaccepted interventions or outcome measures
- No measures of effectiveness or statistical precision presented or calculable

* Numbers 1–3 in Class Ie are required for Class II in equivalence trials. If any one of the three is missing, the class is automatically downgraded to Class III.

** Objective outcome measurement: An outcome measure that is unlikely to be affected by an observer's (patient, treating physician, investigator) expectation or bias (e.g., blood tests, administrative outcome data)

Note: The AAN also provides evidence classification schemes for causation and prognostic questions in the "Clinical Practice Guideline Process Manual" (see the "Availability of Companion Documents" field).

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Evidence was synthesized and conclusions developed using a modified form of the Grading of Recommendations Assessment, Development and Evaluation (GRADE) process. The confidence in evidence was anchored to the studies' risk of bias in accordance with the rules outlined in Appendix e-5 of the data supplement (see the "Availability of Companion Documents" field). The overall confidence in the evidence pertinent to a question could be downgraded by 1 or more levels on the basis of the following factors: consistency, precision, directness, publication bias, or biologic plausibility. In addition, the overall confidence in the evidence pertinent to a question could be downgraded 1 or more levels or upgraded by 1 level on the basis of the following factors: magnitude of effect, dose response relationship, or direction of bias. Two panel members working together completed an evidence summary table to determine the final confidence in the evidence (see Appendix e-6 of the data supplement [see the "Availability of Companion Documents" field] for the evidence synthesis tables). The confidence in the evidence was indicated by use of modal

operators in conclusion statements in the manuscript. "Highly likely" or "highly probable" correspond to high confidence level, "likely" or "probable" correspond to moderate confidence level, and "possibly" corresponds to low confidence level. Very low confidence was indicated by the phrase "insufficient evidence."

Methods Used to Formulate the Recommendations

Expert Consensus (Delphi)

Description of Methods Used to Formulate the Recommendations

The panel formulated a rationale for recommendations based on the evidence systematically reviewed and stipulated axiomatic principles of care. This rationale is explained in a section which precedes each set of recommendations. From this rationale, corresponding actionable recommendations were inferred. The authors assigned a level of obligation to each recommendation using a modified Delphi process to evaluate the following prespecified domains: the confidence in the evidence systematically reviewed, the acceptability of axiomatic principles of care, the strength of indirect evidence, and the relative magnitude of anticipated health benefits to harms. Additional factors explicitly considered by the panel that could modify the level of obligation include judgments with regard to the importance of outcomes, cost of compliance to the recommendation relative to benefit, the availability of the intervention, and anticipated variations in patient preferences. The prespecified rules for determining the final level of obligation from these domains is indicated in Appendix e-7 of the data supplement (see the "Availability of Companion Documents" field). The level of obligation was indicated using standard modal operators. "Must" corresponds to "Level A," very strong recommendations; "should" to "Level B," strong recommendations; and "might" to "Level C," weak recommendations. The panel members' judgments supporting the levels of obligation are indicated in the tables in Appendix e-8 of the data supplement (see the "Availability of Companion Documents" field).

Rating Scheme for the Strength of the Recommendations

Assigning a Level of Strength to the Recommendation

When there is sufficient evidence to support an inference for the use of an intervention (i.e., the balance of benefits and harms favors the intervention), the author panel assigns one of three recommendation designations: A, B, or C. Each designation corresponds to a helping verb that denotes the level of strength of the recommendation. Level A is the strongest recommendation level and is denoted by the use of the helping verb *must*. Must recommendations are rare, as they are based on high confidence in the evidence and require both a high magnitude of benefit and low risk. Level B corresponds to the helping verb *should*. *Should* recommendations tend to be more common, as the requirements are less stringent but still based on the evidence and benefit–risk profile. Finally, Level C corresponds to the helping verb *may* or *might*. *May* and *might* recommendations represent the lowest allowable recommendation level the American Academy of Neurology (AAN considers useful within the scope of clinical practice and can accommodate the highest degree of practice variation.

Level A denotes a practice recommendation that "must" be done. In almost all circumstances, adherence to the recommendation will improve health-related outcomes. A Level B indicates a recommendation that "should" be done. In most circumstances, adherence to the recommendation will likely improve health-related outcomes. A Level C represents a recommendation that "might" be done. In some circumstances, adherence to the recommendation might improve health-related outcomes.

When there is insufficient evidence to support an inference for the use of an intervention (i.e., the balance of benefits and harms is unknown) a Level U or Level R designation is appropriate.

A Level U indicates that the available evidence is insufficient to support or refute the efficacy of an intervention. A Level R is assigned when the balance of benefits and harms is unknown and the intervention is known to be expensive or have important risks. A Level R designates that the intervention should not be used outside of a research setting. Non-evidence-based factors that need to be transparently and systematically considered when formulating recommendations include the following:

- The relative value of the benefit as compared with the risk; this is derived from consideration of:
 - The importance to patients of the health related-outcomes (both benefits and harms)
 - The size of the intervention's effect
 - The risk of harm of the intervention (i.e., tolerability and safety)
- The feasibility of complying with the intervention (e.g., the intervention's availability)
- The cost of the intervention

- The expected variation in patient preferences relative to the risks, burdens, and benefits of the intervention

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

Drafts of the original guideline document have been reviewed by at least 3 American Academy of Neurology (AAN) committees, a network of neurologists, *Neurology*® peer reviewers, and representatives from related fields.

The guideline document was approved by the Guideline Development Subcommittee on January 12, 2013; by the Practice Committee on April 29, 2013; and by the American Academy of Neurology Institute (AANI) Board of Directors on October 29, 2013.

This guideline was endorsed by the World Stroke Organization on December 7, 2012.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Appropriate management of patients with nonvalvular atrial fibrillation (NVAf)

Potential Harms

Antithrombotic agents are associated with risk of hemorrhage including gastrointestinal (GI) and intracranial bleeding.

Qualifying Statements

Qualifying Statements

This statement is provided as an educational service of the American Academy of Neurology (AAN). It is based on an assessment of current scientific and clinical information. It is not intended to include all possible proper methods of care for a particular neurologic problem or all legitimate criteria for choosing to use a specific procedure. Neither is it intended to exclude any reasonable alternative methodologies. The AAN recognizes that specific patient care decisions are the prerogative of the patient and the physician caring for the patient, based on all of the circumstances involved. The clinical context section is made available in order to place the evidence-based guideline(s) into perspective with current practice habits and challenges. Formal practice recommendations are not intended to replace clinical judgment.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Patient Resources

Quick Reference Guides/Physician Guides

Resources

Slide Presentation

Staff Training/Competency Material

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Living with Illness

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

Culebras A, Messing SR, Chaturvedi S, Kase CS, Gronseth G. Summary of evidence-based guideline update: Prevention of stroke in nonvalvular atrial fibrillation: Report of the Guideline Development Subcommittee of the American Academy of Neurology. *Neurology*. 2014 Feb 25;82(8):716-24. [40 references] [PubMed](#)

Adaptation

Not applicable: the guideline was not adapted from another source.

Date Released

1998 Sep (revised 2014 Feb)

Guideline Developer(s)

American Academy of Neurology - Medical Specialty Society

Source(s) of Funding

This guideline was developed with financial support from the American Academy of Neurology. None of the authors received reimbursement, honoraria, or stipends for their participation in development of this guideline.

Guideline Committee

Guideline Development Subcommittee of the American Academy of Neurology (AAN)

Composition of Group That Authored the Guideline

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Financial Disclosures/Conflicts of Interest

Conflict of Interest

The American Academy of Neurology (AAN) is committed to producing independent, critical and truthful clinical practice guidelines (CPGs). Significant efforts are made to minimize the potential for conflicts of interest to influence the recommendations of this CPG. To the extent possible, the AAN keeps separate those who have a financial stake in the success or failure of the products appraised in the CPGs and the developers of the guidelines. Conflict of interest forms were obtained from all authors and reviewed by an oversight committee prior to project initiation. AAN limits the participation of authors with substantial conflicts of interest. The AAN forbids commercial participation in, or funding of, guideline projects. The AAN Guideline Author Conflict of Interest Policy can be viewed at www.aan.com .

Disclosures

A. Culebras has received one-time funding for travel from J. Uriach & Co. (2011); serves on the editorial boards of Medlink, UpToDate.com, and the *International Journal of Stroke*; received royalties from Informa Healthcare and Cambridge University Press; and has held stock in Clinical Stroke Research, Inc.

S. Messé has served as a consultant for GlaxoSmithKline, has received royalties for articles written for UpToDate.com, served on a speakers' bureau for Boehringer Ingelheim (resigned April 2011), and received research support from WL Gore & Associates and the National Institutes of Health (NIH).

S. Chaturvedi serves as a consultant for Abbott Vascular, BMS/Pfizer Partnership, Boehringer Ingelheim, and Genentech; received research support from Daiichi and Johnson & Johnson; and serves on the editorial boards of *Neurology*® and *Stroke*.

C. Kase serves as consultant to Boehringer Ingelheim and Gore Medical Products.

G. Gronseth served on a speakers' bureau for Boehringer Ingelheim (resigned December 2011).

Go to [Neurology.org](#) for full disclosures.

Guideline Endorser(s)

World Stroke Organization - International Agency

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: American Academy of Neurology. Practice parameter: stroke prevention in patients with nonvalvular atrial fibrillation: report of the Quality Standards Subcommittee of the American Academy of Neurology. *Neurology* 1998 Sep;51(3):671-3.

This guideline meets NGC's 2013 (revised) inclusion criteria.

Guideline Availability

Electronic copies: American Academy of Neurology (AAN) guidelines, along with a link to a Portable Document Format (PDF) file for this guideline, are available at the [AAN Web site](#) .

Print copies: Available from the AAN Member Services Center, (800) 879-1960, or from AAN, 201 Chicago Avenue South, Minneapolis, MN 55415.

Availability of Companion Documents

The following are available:

- Summary of evidence-based guideline update: prevention of stroke in nonvalvular atrial fibrillation. Report of the Guideline Development Subcommittee of the American Academy of Neurology. Data supplement (e-appendices, e-references, e-tables). St. Paul (MN): American Academy of Neurology; 2014. Electronic copies: Available from the [Neurology Journal Web site](#) .
- Summary of evidence-based guideline update: prevention of stroke in nonvalvular atrial fibrillation. Report of the Guideline Development Subcommittee of the American Academy of Neurology. Case presentation. St. Paul (MN): American Academy of Neurology; 2014. 6 p. Electronic copies: Available in Portable Document Format (PDF) from the [American Academy of Neurology \(AAN\) Web site](#) .
- Summary of evidence-based guideline update: prevention of stroke in nonvalvular atrial fibrillation. Report of the Guideline Development Subcommittee of the American Academy of Neurology. Summary of evidence-based guideline for clinicians. St. Paul (MN): American Academy of Neurology; 2014. 4 p. Electronic copies: Available in PDF from the [AAN Web site](#) .
- Summary of evidence-based guideline update: prevention of stroke in nonvalvular atrial fibrillation. Report of the Guideline Development Subcommittee of the American Academy of Neurology. Slide presentation. St. Paul (MN): American Academy of Neurology; 2014. Electronic copies: Available from the [AAN Web site](#) .
- Summary of evidence-based guideline update: prevention of stroke in nonvalvular atrial fibrillation. Report of the Guideline Development Subcommittee of the American Academy of Neurology. Podcast. St. Paul (MN): American Academy of Neurology; 2014. Available from the [Neurology Journal Web site](#) .
- AAN guideline development process [online]. St. Paul (MN): American Academy of Neurology. Electronic copies: Available from the [AAN Web site](#) .

Patient Resources

The following is available:

- Irregular heart beat and stroke prevention. Summary of evidence-based guideline for patients and their families. St. Paul (MN): American

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC Status

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